REAPPRAISAL OF THE REPTILES ON THE ISLANDS OF THE HOUTMAN ABROLHOS, WESTERN AUSTRALIA

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INTRODUCTION

The islands of the Houtman Abrolhos have a long history of European visitation dating back to their initial description by Fredrick de Houtman in 1619. They were brought to prominence by the wreck and subsequent mutiny among the survivors of the Dutch ship Batavia in 1629. The Houtman Abrolhos consists of some 170 islands and islets 60 to 80 km off the Geraldton coast. The islands lie between 28°15' South and 29°05' South latitude and west of 114°05' East longitude and are arranged in four groups (North Island, Wallabi Group, Easter Group, Pelsaert Group) that are separated from each other and the mainland by sea depths of up to 40 metres. Between the mid 19th and 20th centuries there was a thriving guano industry on islands of the Pelsaert, Easter and Wallabi groups and mining for this fertilizer was responsible for considerable alteration to the habitats on many islands (Harvey *et al.* 2001).

The recent publication by Harvey *et al.* (2001) provides a comprehensive background on the history of the Houtman Abrolhos as well as detailed descriptions of the geological and botanical diversity of islands making up this archipelago. The geology of islands in the Abrolhos indicates that those defined as belonging to the 'Central Platform' type, such as the Wallabi, Rat and Gun Islands, consists of Cretaceous and Tertiary limestones, siltstones and marls of mainland landforms and these have been isolated by rising sea levels for the past 8000-10 000 years. In contrast the newly created adjacent islands, such as Long, Suomi and Pelsaert, consist of coral rubble of more recent origin.

The vertebrate fauna of the Houtman Abrolhos was detailed by Alexander (1922), and more comprehensive appraisals of the birds were compiled by Storr *et al.* (1986) and Fuller *et al.* (1994). Nearly 100 species of land and sea birds are recorded from the

archipelago. Two terrestrial mammal species are known from the Abrolhos islands: the Tammar Wallaby (*Macropus eugenii derbianus*) occurs on East and West Wallabi and was introduced to North Island; while the Bush Rat (*Rattus fuscipes*) occurs on West and East Wallabi. The reptiles of the island groups were first documented by Alexander (1922) and subsequently by numerous surveys of the islands by Storr and the Aquinas College, Perth, which were summarized and re-evaluated by Storr *et al.* (1983). A total of 23 terrestrial species and the marine Green Turtle, *Chelonia mydas* occur on or around the islands. Two species of frogs, *Limnodynastes dorsalis* and *Myobatrachus gouldii*, are represented by specimens from the Abrolhos islands in the British Museum (Alexander 1922) but there have been no recent records of frogs from the islands. The mainland remnant islands appear to have the most diverse herpetofauna and retain populations of species known to occur on the adjacent mainland.

Two threatened vertebrate species, the Abrolhos Island Painted Button-quail (*Turnix varia scintillans*) and the Lesser Noddy Tern (*Anous tenuirostris melanops*) are endemic to the archipelago (both are classified as 'Vulnerable'). The Brush Bronzewing Pigeon (*Phaps elegans*), Tammar Wallaby, Abrolhos Dwarf Bearded Dragon (*Pogona minor minima*) and the Abrolhos Spiny-tailed Skink (*Egernia stokesii stokesii*) are all classed as Priority Four Taxa under the CALM priority ranking of species. These are "taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change". The Carpet Python (*Morelia spilota imbricata*) is considered as a species in need of special protection.

The Abrolhos islands are the type locality of six reptile taxa, *Pogona minor minima*, *Heteronotia binoei*, *Christinus marmoratus*, *Strophurus spinigerus* subsp. *spinigerus*, *Egernia stokesii stokesii* and *Eremiascincus richardsonii*. There are no recent records of the latter species from the Abrolhos. The gecko *Crenadactylus bilineatus*, also with its type locality on the Abrolhos islands, has been synonomised with *C. ocellatus* by Cogger *et al.* (1983).

METHODS

A brief examination of the herpetofauna of twelve of the Abrolhos islands was undertaken between 15-17 April 2003,. by six herpetologists. It was determined that 'Central Platform' islands would be the focus of the sampling program with the aim of enhancing knowledge of the reptile fauna of these limestone islands, in particular those of the Pelsaert Group, and to provide additional information on the CALM Priority Four Taxon, *Egernia s. stokesii*. Sampling on the islands was undertaken opportunistically with up to four hours spent searching all major habitats on the islands. All records of specimens from the

islands have been re-examined and their identity validated by a recent audit of the herpetological collections of the Western Australian Museum by one of us (BM).

RESULTS

A total of 195 captures were made of 17 species during sampling in April 2003. No new species were collected for the Houtman Abrolhos, although important new records of species were made for several islands, particularly those defined as 'central platform' type in both the Wallabi and Pelsaert groups.

Pelsaert Group

Six limestone islands were examined for between two and four hours by up to six people. These islands were Middle, Murray, Gun, One, Two and Three Islands. The number of reptile species known on Gun Island was increased from 5 to 7 with the addition of *Lerista lineopunctulata* and *Menetia greyii*; on Murray Island from 4 to 8 with the addition of *Crenadactylus ocellatus* subsp. *ocellatus*, *Cryptoblepharus carnabyi*, *Lerista elegans* and *Morethia obscura*; and on Middle Island from 6 to 8 with the addition of *Delma australis* and *Morethia obscura*. No previous information was available for One, Two or Three Islands but they probably represent the three islets south of Gun Island referred to by Storr *et al.* (1983). Of particular significance was the documentation of healthy populations of the *E. s. stokesii* on both Murray and Middle Islands. The extensive removal of guano from Gun Island probably accounts for the failure to locate either of the two larger skinks, *E. kingii* and *E. s. stokesii*, at this location where habitats had been drastically altered and recently created rock piles were evident. Only one specimen of *E. kingii* from Gun Island is in the collections of the Western Australian Museum.

Fourteen species were documented from the six islands examined, increasing the number of known species in the Pelsaert Group of islands from the previous ten. New records for the Pelsaert Group were *Delma australis*, *Lerista elegans*, *Lerista lineopunctulata*, and *Menetia greyii*.

Easter Group

A brief search for reptiles was made on Dry Island, as well as the two coral rubble islands of Keru and Suomi nearby. No species were located on the 'Central Platform' type Dry Island and a single individual of *Menetia greyii* was located on each of Keru and Suomi islands. None of these represent new records for the islands or the group. Dry Island has been dramatically altered by guano mining with little remnant vegetation remaining and is covered with numerous rock piles created during mining. Earlier reports by Alexander (1922) indicate that *Egernia stokesii* occurred on Rat Island before the introduction of cats, sometime between 1889 and 1913, however, the Museum has no collections of this species from the island.

Wallabi Group

Reptiles were surveyed on East Wallabi, Tattler and Oystercatcher Islands. Six species, all previously recorded, were collected from East Wallabi. Tattler Island was known to have populations of both the gecko *Christinus marmoratus* and skink *Egernia s. stokesii*. Both of these species as well as the skinks *Cryptoblepharus carnabyi* and *Ctenotus fallens* were collected and *Egernia kingii* was observed.

No previous records of reptiles were available for Oystercatcher Island and our brief survey collected the geckos, *Underwoodisaurus milii*, *Crenadactylus ocellatus* and *Christinus marmoratus* and the skinks *Ctenotus fallens* and *Egernia kingii*. The skink *C. carnabyi* was observed but not collected.

DISCUSSION

The total number of terrestrial reptile species known to occur on the Houtman Abrolhos is 23 species, all but three of which are recorded on the large islands of East and West Wallabi (Table 1).

Storr *et al.* (1983) report on the Western Australian Museum specimen R188 from the Wallabi islands as belonging to *Lerista greeri*, however, the validity of this identification cannot be verified as the specimen is lost and, since all other specimens of this species occur in the Kimberley, we have discounted the record. Similarly, Storr *et al.* (1983) do not recognize the British Museum specimens of the two frog species noted by Alexander (1922) nor that of the skink, *E. richardsonii*, in their compilation of the Abrolhos herpetofauna. The lack of recent records of these taxa suggests that they were incorrectly attributed or are now locally extinct on the archipelago.

There are numerous island records noted by Storr *et al.* (1983) that are not represented in the Western Australian Museum collections, these records appear as an asterix in Table 1, while those species observed but not collected during the present survey are denoted by a hash. There is recent photographic evidence of a Carpet Python on East Wallabi Island but the population density appears to be very low and none were observed during our search of this island. Seagull Island, immediately to the north of Oystercatcher Island and separated by less than 20 metres of sea, was not visited by us but is recorded as having populations of the geckos, *Christinus marmoratus*, *Crenadactylus ocellatus* and *Underwoodisaurus milii*; the skinks *Ctenotus fallens* and *Egernia stokesii* subsp. *stokesii*; and the python *Morelia spilota imbricata*. Our brief survey of Oystercatcher Island indicates that such records, with the likely exception of *Morelia spilota*, are very probably accurate. As well as the earlier records of *E. stokesii* from Rat Island in the Easter group, Storr *et al.* (1983) noted the former occurrence of the python, *Morelia spilota*, on North Island; however, no recent records exist.

Storr *et al.* (1983) indicated the impoverished reptile fauna recorded from the Easter group

Table 1. Records of species from specific islands in the Houtman Abrolhos represented by specimens in the Western Australian Museum collections. An * represents un-vouchered records presented in the literature and # species sighted during the present survey. Two amphibians and the skink, *Eremiascincus richardsonii*, mentioned in text, are of doubtful origin and not included in this Table.

Name	NORTH ISLAND TOTAL	EASTERN	LONG	OYSTERCATCHER	PELICAN	PIGEON	PIGEON LITTLE	SEAGULL	TATTLER	TURNSTONE	WALLABI EAST	WALLABI WEST	WALLABI TOTAL
Pogona minor	12										38	54	95
Christinus marmoratus	34			1	11			*	8	2	4	11	37
Crenadactylus ocellatus				1				*	*		*	6	7
Gehyra variegata											3	8	11
Heteronotia binoei	17											7	7
Strophurus spinigerus											1	11	14
Underwoodisaurus milii				2		3		*			11	98	116
Delma australis													
Delma grayii												1	1
Lialis burtonis											1	6	7
Cryptoblepharus carnabyi				#				1	1		2	3	9
Ctenotus fallens	10			3			1	*	2		6	27	39
Egernia kingii	5		1	2		*	1	2	#		15	17	38
Egernia stokesii						1		*	11		54	82	153
Lerista distinguenda													
Lerista elegans	1										1	*	1
Lerista lineopunctulata	2											1	1
Lerista praepedita	4										3	*	3
Menetia greyii	1	1											1
Morethia lineoocellata	4										6	*	7
Morethia obscura													
Morelia spilota	*							*				5	5
Simoselaps littoralis											2	1	3
SPECIES	11	1	1	6	1	3	2	8	6	1	15	19	20
GRAND TOTAL	90	1	1	9	11	4	2	3	22	2	148	338	556

but pointed out that two taxa occur on these islands (*Delma australis* and *Lerista distinguenda*) that are absent on adjacent groups and have restricted or absent distributions on the adjacent mainland. They also noted that *Menetia greyii* is known only on Eastern Island in the Wallabi group apart from several records

BUSHBY	KERU	LEO	MORLEY	RAT	RAT LITTLE	SUOMI	WOODED	EASTER TOTAL	BASILE	GUN	MIDDLE	MURRAY	ONE	PELSART	SHARK	THREE	TWO	PELSAERT TOTAL
			6	14	1		8	29	1	15		1*	2	5		8	3	52
6				23	5			34			11	5						16
											9	5						14
										3								3
				11				11			1							1
			1	10	3			14		6		1	1		1	1		10
				5	4			9			8							8
										1	7*	3*	2	6		5		24
				*				*			16	6						22
				6				6										
												4						4
										2								2
											2							2
	1	1	1	2		2		7		1							3	4
										5	3	2		16				26
1	1	1	3	8	4	1	1	8	1	7	8	8	3	3	1	3	2	14
6	1	1	8	71	13	2	8	110	1	33	57	27	5	35	1	14	6	188

in the Easter group. Our survey has recorded *D. australis* from Middle Island in the Pelsaert group and M. *greyii* on two islands in the Pelsaert group.

There is considerable information still to be gathered on the reptile fauna of the Houtman Abrolhos islands as detailed sampling involving pitfall trapping has not

been undertaken on this remote archipelago. This technique will add substantially to our knowledge by detailing the more cryptic and nocturnal species that are wholly or in part fossorial in their habits. Complementing this sampling should be the acquisition of tissue from species that represent the type populations of taxa that are widespread on the adjacent mainland, and that are in need of molecular studies of their taxonomic status.

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